Wilmington Rail Realignment

DRAFT

Purpose and Need Report

Prepared For:

Federal Railroad Administration and the City of Wilmington

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Table of Contents

1. PURPOSE OF AND NEED FOR THE PROJECT

1.1 INTRODUCTION

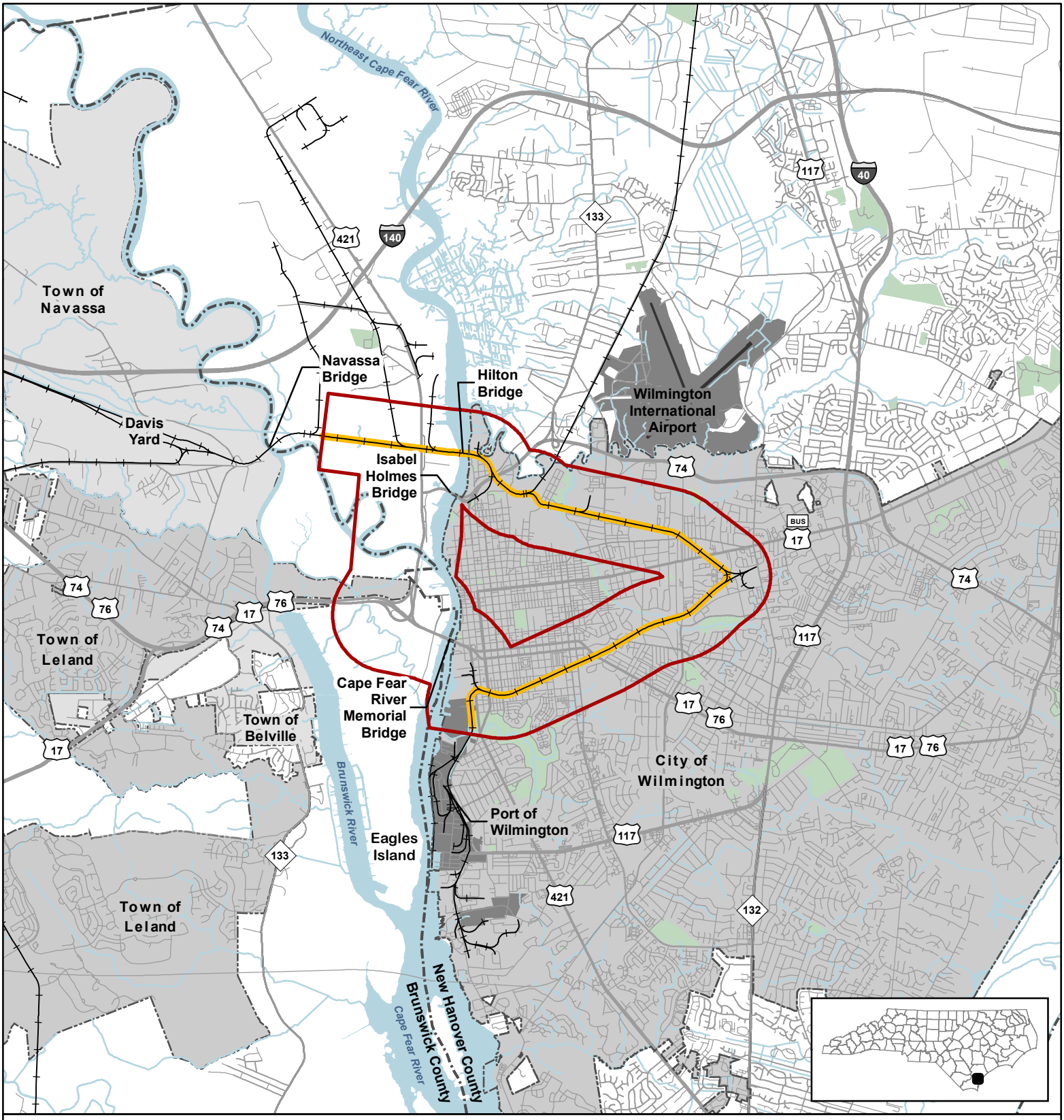
The City of Wilmington, in coordination with the Federal Railroad Administration (FRA) (Lead Federal Agency) is undertaking a study to evaluate realigning an existing CSX Transportation (CSXT) freight rail line primarily within the city limits. The study, referred to as the Wilmington Rail Realignment (Project), proposes a route to bypass the existing freight rail route between Navassa (Davis Yard) and the Port of Wilmington (Port). The result would create a new freight rail alignment that would improve freight rail operations, regional mobility and public safety.

In accordance with the National Environmental Policy Act of 1969 (NEPA), an Environmental Assessment will be prepared for the proposed Project. The environmental document is intended for use as an informational document by the decision-makers and the public. As such, it represents a disclosure of relevant environmental information concerning the proposed action. The content of this document conforms to the Council on Environmental Quality (CEQ) guidelines, which provide direction regarding implementation of the procedural provisions of NEPA, and the Federal Rail Administration's (FRA) *Procedures for Considering Environmental Impacts* (1999).

This statement of the purpose and need explains why improvements to the rail transportation system in the project area (the proposed action) should be identified and implemented. This statement drives the process for alternatives consideration and in-depth analysis. CEQ regulations require that an environmental document address the "no action" alternative and "rigorously explore and objectively evaluate all reasonable alternatives." Furthermore, a well-justified purpose and need is vital to meeting the requirements of NEPA, Section 4(f) (49 U.S.C. 303), the Executive Orders on Wetlands (E.O. 11990) and Floodplains (E.O. 11988), and the Section 404(b)(1) guidelines.

1.2 PROJECT CONTEXT

The Project is located primarily within the City of Wilmington and New Hanover County, but also extends into Brunswick County. The existing CSXT rail line, commonly referred to as the "Beltline," is the only active track through the City. The railroad runs east from the Davis Yard in Navassa in Brunswick County and forms the shape of a "V" through the City of Wilmington from the Hilton Bridge on the Northeast Cape Fear River north of downtown Wilmington, to Kerr Avenue (SR 1175) to the east, and back west to the Port (Figure 1). The majority of the railroad traffic that traverses the Beltline originates or terminates at the Port owned railroad, operated by Wilmington Terminal Railroad (WTRY, a subsidiary of Genesee & Wyoming).



CITY OF WILMINGTON NORTH CAROLINA

Wilmington Rail Realignment Project

New Hanover County and Brunswick County, NC

Legend

- Study Area
- County Boundary
- Park
- Railroad

Figure 1
Project Study Area

Date: December 2020

0 0.5 1 2
Miles

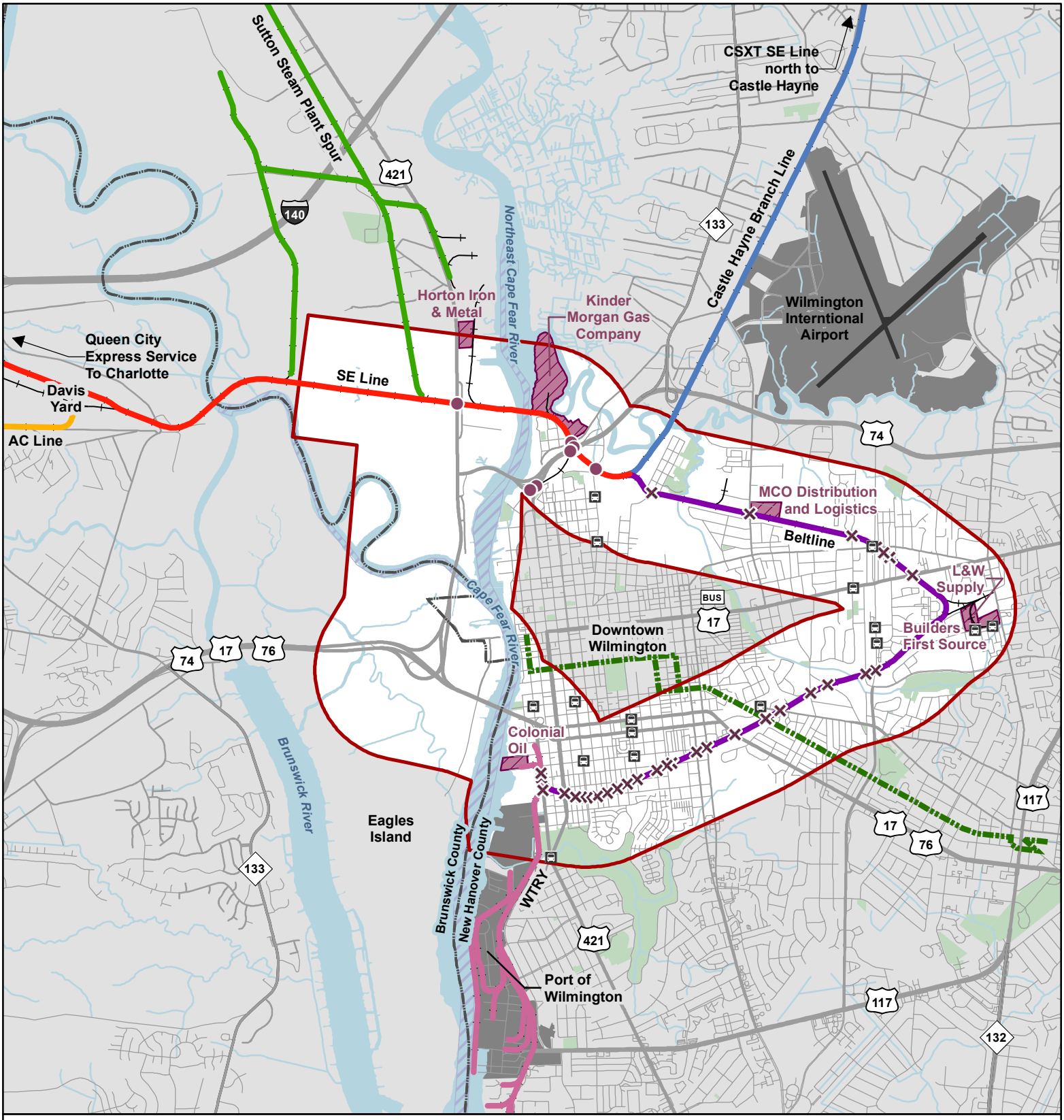
1 inch = 8,000 feet

The built environment includes infrastructure that encompasses regional and local community resources, such as businesses, residential development, transportation networks, services and utilities, parks and recreational resources, cultural and religious resources, and other community gathering places. In the most general terms, the built environment represents the physical capital that sustains those residing and working within the City.

The Wilmington Rail Realignment is the first phase of a broader vision by the City of Wilmington to improve the regional mobility and eventually consider reuse of the Beltline through the City. The Project is needed to improve freight rail operations, regional mobility, and public safety by separating the two types of transportation, vehicular and freight. A later phase envisioned by the City includes reuse of the Beltline for better community connectivity through repurposing the existing railway.

The Project proposes to reroute all existing freight traffic (both local and through traffic) from the Beltline to a new rail connection to be constructed between Davis Yard/Navassa and the Port of Wilmington. Within the Beltline, through traffic is defined as freight traffic originating and/or terminating at the Port of Wilmington and traveling outside of the study area, local traffic is defined as freight traffic with a destination along the Beltline. As illustrated in Figure 2, the Beltline serves three local shippers and provides connectivity between the SE Line and WTRY for through traffic between the Port facilities and the rail yard in Navassa (Davis Yard). Also, one shipper (Colonial Oil) near the Port is served off WTRY trackage and requires movements on the Beltline to perform switching activities. All freight service but the WTRY local train operating on the Beltline originates and terminates in Davis Yard.

- MCO Distribution and Logistics – served by the Beltline
- L&W Supply – served by the Beltline
- Builders First Source – served by the Beltline
- Colonial Oil – served by WTRY, movements on the Beltline are required



Legend

- Study Area
- County Boundary
- Park
- Maintained Navigation Channel
- Rail Shipper
- Bus Stops Clip
- Grade-Seperated Crossing
- At Grade Crossing
- Railroad
- SE Line
- Malmo Spur - AC Line
- Sutton Steam Plant Spur
- Castle Hayne Branch Line
- Wilmington Beltline
- NCSPA Track - WTRY
- River to Sea Trail

CITY OF WILMINGTON NORTH CAROLINA

Wilmington Rail Realignment Project

New Hanover County and Brunswick County, NC

Source: Connect NCDOT GIS Resources

Figure 2
Existing Transportation Network

Date: December 2020

0 0.25 0.5 1
Miles

1 inch = 5,000 feet

Existing freight operations along the Beltline may vary from day to day depending on shipper demand, CSXT resource planning, and WTRY resource planning. CSXT trains performing interchange with WTRY at the Port facilities travel over the entirety of the Beltline, while other CSXT and WTRY trains move over portions of the Beltline in performance of local switching operations at the aforementioned shippers. Table 1 provides an average weekly approximation of train activity on the Beltline.

Table 1: Average Weekly Beltline Train Activity

Train Type	Weekly Average Train Movements
Overhead / Interchange / Through Trains (Davis Yard to/from WTRY)	14 or more
CSXT Local (Switching MCO, L&W & Builders)	2
WTRY Local (Switching Colonial Oil)	10

For the purposes of this study, the Project assumes all freight rail operations occurring on the Beltline would be relocated to a new bypass route. Recognizing that there are currently three local shippers on the Beltline, the relocation of certain components of the rail operation may take place incrementally. Regulatory considerations, as well as coordination between the City, CSXT, shippers and other stakeholders, will dictate how relocation is carried out.

The Project Study Area encompasses approximately a one-mile area centered on the existing CSXT rail line from east of Navassa to the Port through the City of Wilmington. The central business district area of Downtown Wilmington is mostly excluded from the Project Study Area as the Beltline route primarily circumvents Wilmington to the east. Within the Project Study Area, parcels in Brunswick County are relatively undeveloped and include industrial and/or commercial development along the Cape Fear River and US 421. Eagles Island, between the Cape Fear and Brunswick Rivers, is part dredge spoil and part pristine tracts of wetlands. New Hanover County, which includes the City of Wilmington, is largely developed within the Project Study Area. The Cape Fear River splits at Wilmington with the Cape Fear River continuing westward toward Navassa and the Northeast Cape Fear River branching north along the City's waterfront.

There are four operable rail and highway bridges over the Cape Fear River in the Project Study Area, including two highway bridges north and south of Downtown Wilmington and two railroad

bridges north of Downtown. The Cape Fear River Bridge carries US 17/76/421 over the main channel of the Cape Fear River south of Downtown and just north of the Port of Wilmington. The Isabel Holmes Bridge carries US 74 over the Northeast Cape Fear River just north of Downtown. The Hilton Bridge and Navassa Bridge carry only rail across the Northeast Cape Fear River and the Cape Fear River north of Downtown. The Navassa Bridge over the Cape Fear River is manned continuously. The Hilton drawbridge over the Northeast Cape Fear River is remotely operated from the Navassa Bridge. Trains must stop at both bridges unless granted permission by the bridge tender to proceed.

1.2.1 Existing and Planned Freight Service

Intercity freight rail transportation in Wilmington is provided solely by CSXT, a Class 1 railroad, in corridors that are wholly owned by the private railroad. There is no current passenger rail service to Wilmington. Freight rail service to the study area originates at CSXT's Davis Yard off Cedar Hill Road near Navassa in Brunswick County on the west side of the Cape Fear River. The line runs eastward towards Wilmington crossing both the Cape Fear River (Navassa Bridge) and the Northeast Cape Fear River (Hilton Bridge) (both with moveable bascule bridge spans) before entering Wilmington and New Hanover County on the north side of the City, north of the Isabel Holmes Bridge (US 74).

CSXT's Davis Yard serves as the base for CSXT's switching operations to the "SE Line." Davis Yard is approximately 3 route miles long, with 28 separate tracks and with a capacity of approximately 2,250 train cars. The facility has piggyback service (trailer on railcar), loading ability for dry and liquid bulk products, and warehouses for lumber, paper, and packaged products. In 2015, Davis Yard processed approximately 90,000 to 98,000 rail cars per year. Train lengths today are averaging 3,500 feet, or about 70 rail cars per train. Up to eight scheduled trains in a day operate on the Beltline. The capacity of the line is 12 trains per day (Wilmington Urban Area Metropolitan Planning Organization - WMPO 2015). CSXT has indicated they would like to utilize the corridor for the maximum 12 trains per day (AECOM 2018).

Right-of-way widths throughout the Beltline corridor are predominately 125 feet to 130 feet, though it is as narrow as 40-feet for a short segment. Track speed is 10 mph over the Beltline which is determined by CSXT operating rules. Contributing factors which determine track speed in the area include the presence of movable bridges, track curvatures, proximity to yard limits, lack of track signalization, and other general track operation and safety considerations. The Beltline passes through over thirty highway-rail grade crossings, including major roadways at US 74/Martin Luther King Jr. Parkway (grade separated), 23rd Street, Princess Place Drive, Market Street, Covil Avenue/Independence Boulevard Extension, Wrightsville Avenue, Oleander Drive, South 16th Street, South 17th Street, South 3rd Street, and South Front Street.

The Port of Wilmington generates the majority of rail traffic in the area with rail service scheduled for seven days per week, presently traveling through the Project Study Area twice a day (in/out). The total track mileage from CSXT Davis Yard to the North Gate of the Port is approximately 10.7 miles. The railroad west of 4th Street is owned by the North Carolina State Port Authority and is operated under a lease agreement by the Wilmington Terminal Railroad (WTRY, a Genesee & Wyoming operating subsidiary). WTRY has 17 total track miles and can accommodate heavy 286,000-pound GVW (gross vehicle weight) carloads. The WTRY also serves industrial shippers south of the Port along River Road as well as Colonial Terminals north of the CSXT and Port connection.

The Queen City Express, which began service in July 2017, provides intermodal transit service from the Port of Wilmington to the North Carolina Ports Charlotte Inland Port where goods can be distributed throughout the southeast via the I-85 and I-77 corridors. The Queen City Express is a daily rail service moving double-stacked containers between Wilmington and Charlotte. In addition, the CSXT "SE Line" between Wilmington and Pembroke connects the Port to the CSXT "National Gateway" corridor that follows I-95 from North Carolina to the Mid-Atlantic and Midwestern states through Washington, DC and Baltimore, MD. Additionally, NCDOT and CSXT are constructing the Carolina Connector (CCX) intermodal terminal in Rocky Mount, NC, which is anticipated to be a major intermodal hub for CSXT along the National Gateway in North Carolina.

The Port of Wilmington is also a leader in wood pellet exports to Europe. Enviva and NC Ports have a public-private partnership in which Enviva leased Port property to construct two storage domes to store up to 90,000 metric tons of wood pellets. Pellets are delivered via rail line and truck from Enviva plants in Sampson County (truck) and Richmond County (rail). In 2018, Enviva exported 1 million metric tons of pellets via 20 transoceanic shipments from the Port, but the facility has the capacity to export 3 million metric tons of pellets with up to 80 transoceanic shipments (O'Neal 2017).

In addition to the Port, there are a number of sites with rail access along the CSXT Beltline. They include:

- MCO Distribution and Logistics
- L&W Supply
- Builders First Source
- Colonial Oil

NCDOT owns 27 miles of the former Wilmington & Weldon rail line between Castle Hayne (just north of Wilmington) and Wallace in Duplin County with hopes of restoring the rail line for inter-city passenger service.

1.2.2 Planned Projects

Wilmington Beltline Improvements

NCDOT's P-5740 Wilmington Beltline Improvements project includes the removal of three at-grade crossings as well as improvements to 23 other crossings on the Beltline. The project also contemplates tie and rail rehabilitation, curvature adjustments and other line of road improvements. Construction is currently scheduled to begin in FY 2022.

Wilmington Urban Area Metropolitan Planning Organization Long-Range Transportation Plans

The *Cape Fear Moving Forward 2045 Metropolitan Transportation Plan* (City of Wilmington 2020), was adopted in November 2020. A key focus of the 2045 plan is improving freight movement within the region by promoting intermodal connections for ports, rail, and highway to improve supply chain reliability. This includes improvements to the US 74 highway corridor and the CSXT rail line connecting the Port of Wilmington to Charlotte, as well as restoration of the rail line between Castle Hayne and Wallace to provide rail access to Raleigh and the Northeast. The plan notes the Wilmington Rail Realignment as an important connection within the region's transportation network and includes a number of roadway and rail projects to improve freight movement in the region. Truck/roadway projects include several projects along Shipyard Boulevard, the primary access to the Port, as well as roadway widenings and intersection improvements on truck routes to the Port. Rail projects include safety improvements at several at-grade crossings of the CSXT Beltline. Other projects listed in the Roadway element of the plan are also targeted at reducing/maintaining the rate of mean travel time for people and freight, reducing vehicle miles travelled (VMT), maximizing throughput for each lane, reducing peak hour delay, and addressing future growth in employment, population, and freight/industry.

Cape Fear Memorial Bridge Feasibility Study (NCDOT SPOT ID H185357)

NCDOT Feasibility Studies Unit completed an express design and environmental screening for replacing the Cape Fear Memorial Bridge, which carries US 17/US 76/US 421 over the Cape Fear River between New Hanover and Brunswick Counties north of Wilmington. The existing bridge is a 4-lane steel center-span vertical lift bridge. The feasibility study proposed expanding to a 6-lane median divided facility with one alternative (Alternative 4) incorporating a new railroad crossing.

NCDOT Comprehensive Rail Plan

The NCDOT Rail Division developed the *Comprehensive State Rail Plan* to help identify needs and guide investments in the state's freight and passenger rail network for the next 25 years. The State

Rail Plan was adopted in August 2015. The data and projects listed in the State Rail Plan are used by NCDOT to help determine which projects will be evaluated and when they are programmed in the State Transportation Improvement Program (STIP). The Port of Wilmington is identified as an area of opportunity for additional freight rail needs. Additionally, the report recommends implementing the recommendations from the Wilmington Traffic Separation Study of rail crossing consolidation and safety upgrades as well as investigating the feasibility of a new rail bridge across the Cape Fear River to improve port rail traffic from Wilmington. The plan identifies the Pembroke to Wilmington line segment as "Investment Program" prioritization tier which means the corridor shows promise for passenger/commuter rail improvements. The Investment Program tier is the highest-ranking tier for the results of freight needs (NCDOT 2015).

NCDOT 2020-2029 State Transportation Improvement Program

The STIP is NCDOT's plan for funding transportation projects statewide, and includes roads, ferries, public transportation, aviation, and passenger rail projects. It is updated every two years. STIP projects are programmed and chosen from Long Range Transportation Plans (LRTP) of the appropriate Metropolitan Planning Organizations (MPO) in the area. The Wilmington Rail Realignment Project was submitted to be included in the STIP and received $500,000 from NCDOT Board Contingency funding. STIP projects in the vicinity of the Project are included in Table 1 of the Appendix.

Independence Boulevard Extension (NCDOT STIP U-4434)

Included as NCDOT STIP project number U-4434, the proposed Independence Boulevard Extension is located in the Project Study Area. The purpose of the proposed extension is to improve north-south connectivity between major routes and shift some motor vehicle traffic away from residential streets. NCDOT asserts that the Independence Boulevard project would improve connectivity between the Port, Wilmington Airport, University of North Carolina at Wilmington (UNCW), and I-40. The design for this project was predicated on the requirement from CSXT that all road improvements over the railroad be grade separated. The 2002 feasibility study assumed the proposed roadway would cross the southern CSXT rail crossing at-grade and the northern crossing would be grade separated. Cost estimates associated with the feasibility study were estimated at $37 million (NCDOT 2002). The current design for the Independence Boulevard Extension project assumes a grade separated crossing over the southern CSXT crossing and an elevated structure beginning at the Market Street interchange and continuing north of Hurst Street. This design was proposed to eliminate the rollercoaster effect of the roadway due to the requirement from CSXT that all road improvements over the railroad be grade separated and to minimize the barrier effect to communities. Construction cost estimates for this design are estimated to be approximately $215 million (NCDOT 2020).

North Carolina Megasites

Two of the state's seven proposed Megasites are located in the vicinity of Wilmington. The Mid-Atlantic Industrial Rail Park is an 1,100-acre site just outside of Wilmington between US 74/US 76 and the CSXT rail line, approximately 18 miles from the Port of Wilmington. The International Logistics Park is a 1,040-acre side on the border of Brunswick and Columbus counties south of US 74/US 76. These sites have been selected by the Economic Development Partnership of North Carolina (EDPNC) for recruiting new businesses to the state and supporting existing business expansion. The sites offer development opportunities with economic incentives for manufacturing and other industries and were selected based on access to transportation infrastructure, utilities, and workforce (EDPNC 2020).

1.3 Proposed Action

The City of Wilmington (City) is proposing to reroute all existing freight traffic from the Beltline to a new rail connection to be constructed between Navassa (Davis Yard) and the Port of Wilmington. The proposed bypass would create a new freight rail alignment that would improve freight rail operations, regional mobility and public safety.

1.4 Purpose of Proposed Action

The primary purpose of the Wilmington Rail Realignment Project is to improve safety, regional transportation mobility, and freight rail operations, while also improving the resiliency, reliability, and operational fluidity of the sole freight rail route connecting southeastern North Carolina with the Port of Wilmington.

The project would address various needs as described in the following section.

1.5 Need for Proposed Action

The Project will address three main needs including the need for enhanced efficiency of freight movement, improved safety, and improved regional mobility and reliability. The challenges the City of Wilmington faces with rapid population growth and increasing traffic congestion combined with increases in freight movement through the Port of Wilmington are straining the existing transportation network. Of concern are the numerous at-grade crossings through the city that pose a risk to public safety, increased traffic delays and travel times, and increased auto emissions due to longer idling. To access the Port of Wilmington, freight trains must currently travel over 10 miles through Wilmington, crossing 32 at-grade crossings (30 public crossings and 2 private crossings) within the Project Study Area. The at-grade crossings frequently cause traffic delays, present a safety risk and reduce the quality of life for the 50,000 residents in the study area. Due

to increasing volumes at the Port and sustained population growth, compounded impacts are expected to worsen in the coming years.

Under future conditions, the project assumes the local transportation system would evolve as currently planned without implementation of the Project. With the exception of routine maintenance and fiscally constrained programmed projects, such as the Wilmington Beltline Improvements Project (P-5740), no change would take place along the existing corridor within the Project Study Area.

1.5.1 Efficient Freight Movement

Brunswick and New Hanover Counties have experienced robust population increases in recent years, affecting the fluidity of the local transportation network. Added delays at rail crossings due to slow moving or stopped trains affects the local operations of the freight and vehicular network within the Project Study Area.

Population Growth

Population growth in the region is taking place at a rapid pace. According to the US Census Bureau, between 2000 and 2010 the populations of Brunswick and New Hanover counties experienced growth of 46.9 and 26.4 percent, respectively, compared to 18.5 percent in North Carolina and 9.7 percent in the United States. Growth continued between 2010 and 2020, with the counties growing by 36.0 and 18.1 percent, respectively. Growth is expected to continue over the next twenty years based on projections made by the North Carolina Office of State Budget and Management (NC OSBM), with an additional 135,000 people moving to the two counties by 2039 (NC OSBM 2019). Currently, residents across the region rely mostly on automobiles for travel, and meeting the residents' needs to connect to their jobs will become more challenging as traffic congestion worsens with population growth.

Table 2: Population Trends and Forecasts

Area	Population			
	2000	2010	2020	2039
Brunswick County	73,143	107,431	146,135	210,202
New Hanover County	160,307	202,667	239,272	309,830
North Carolina	8,049,313	9,535,483	10,630,691	12,919,921

Source: NC OSBM 2019.

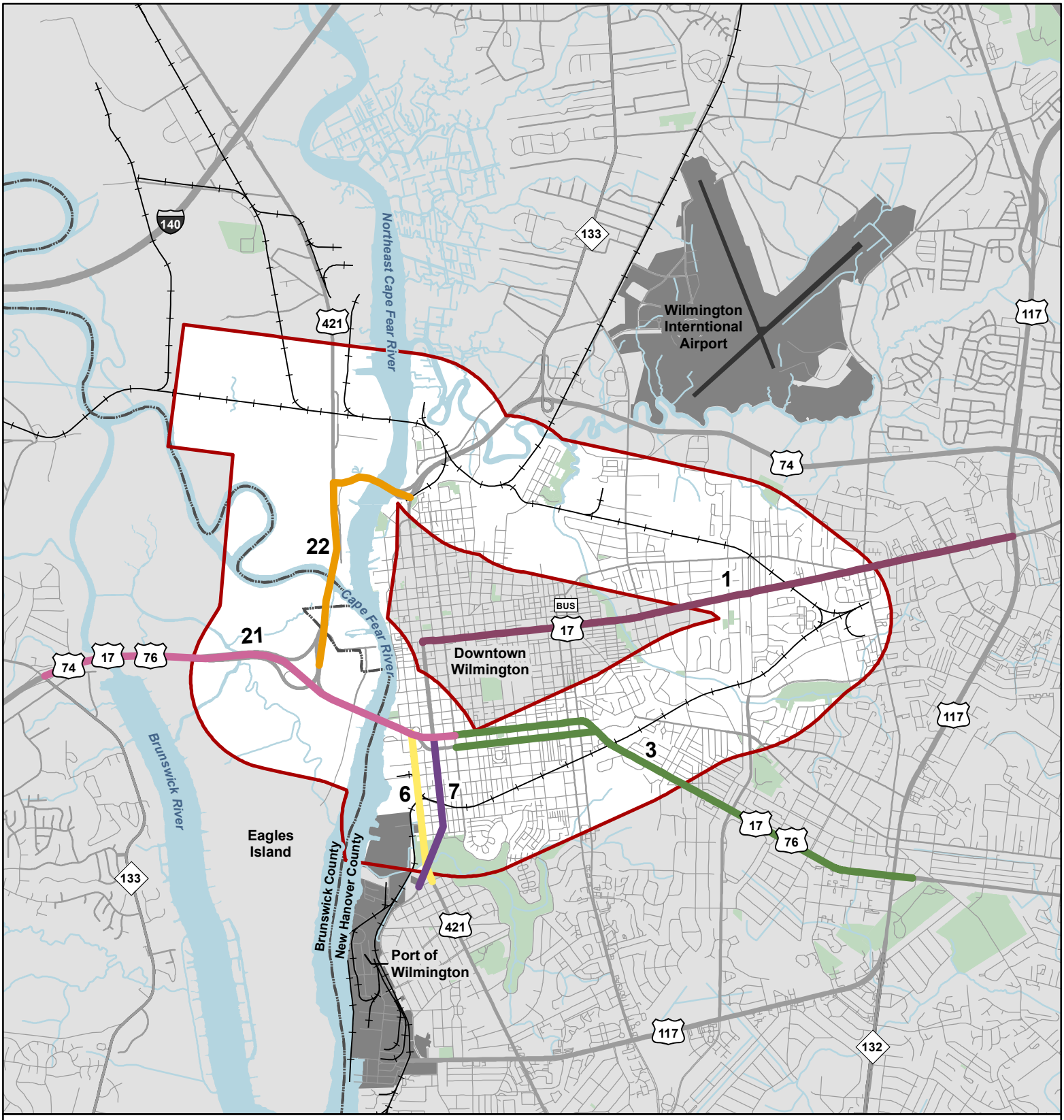
Traffic Congestion

According to the WMPO's long-range plan, future growth projections suggest that congestion levels on the local transportation network could hamper the Port's growth plans and

competitiveness (City of Wilmington 2020). Deficiencies in the existing transportation network diminish the ability to efficiently distribute goods and services from the Port of Wilmington. Access to the port terminal is critical in creating an efficient and effective supply chain and the roads and rail lines leading into and out of the port terminal are a critical part of the NC's pipeline to the global marketplace.

In 2014, WMPO developed a Congestion Management Process (CMP) to identify congested locations, determine causes of congestion, rank the most congested segments and develop transportation strategies to reduce traffic congestion while enhancing safety and multi-modal mobility region wide (WMPO 2018). WMPO publishes a Biennial Data Report. The 2018 report summarizes data collected between 2016 and 2018. Figure 3 shows the facilities the report identifies as the most congested in and around the Project Study Area:

- Segment 1: Market Street from 3rd Street to College Road and particularly the segment between Covil Avenue and Kerr Avenue, which includes an at-grade Beltline crossing
- Segment 3: Oleander Drive between 5th Avenue and Treadwell Street, including an at-grade Beltline crossing
- Segment 6: Front Street between Lake Shore Drive and Cape Fear Memorial Bridge, in the vicinity of the Port (notably high truck percentage), includes multiple at-grade Beltline crossings
- Segment 7: S. 3rd Street between Kentucky Avenue and Wooster Street in the vicinity of the Port, which includes an at-grade Beltline crossing
- Segment 21: US 17/74/76 across the Cape Fear Memorial Bridge
- Segment 22: US 17/ US 421/NC 133 from the US 17 split to N. 3rd Street, including the Isabel Holmes Bridge
- College Road, 17th Street, Kerr Avenue and Shipyard Boulevard, which are truck routes to the Port from I-40 are also noted among the most congested corridors.



CITY OF WILMINGTON NORTH CAROLINA

Wilmington Rail Realignment Project

New Hanover County and Brunswick County, NC

Legend

- Study Area
- County Boundary
- Park
- Railroad
- Segment 1
- Segment 3
- Segment 6
- Segment 7
- Segment 21
- Segment 22

Figure 3
Congested Road Segments

Date: December 2020

0 0.25 0.5 1
Miles

1 inch = 5,000 feet

Source: WMPO. Congestion Management Process (CMP). 2018.

Existing Rail Infrastructure

CSXT operates and maintains the tracks from Davis Yard to the S. 3rd Street crossing in Wilmington. The Beltline operates under "CSXT Yard Limit Rules" which constrains the speed of operations and requires that trains can stop within one-half the range of the engineer's vision. There are no sidings to accommodate long trains to pass each other. Track speed is limited to 10 mph due to the movable bridges, curvature of the Beltline at the "V", and general track conditions. These constraints, along with the design and condition of the rail infrastructure, requires 1.25 to 1.75 hours for a train to travel the 10 miles from the Hilton Bridge to the Port (Mott MacDonald 2017).

Port Capacity

Intermodal capacity at the Port is currently at 600,000 TEUs (Twenty-foot Equivalent Unit) per year, with plans to double this capacity to 1.2 million TEUs per year. An 8,000-foot long intermodal train carrying single-stack TEUs can carry approximately 30,000 TEUs per year capacity making one round trip per day. Each additional train or each additional round trip would increase the capacity delivered by rail by approximately 5 percent per train or per round trip, e.g. four trains would carry approximately 120,000 TEUs. In comparison to the number of trucks that would be required to carry this volume of cargo, freight rail offers a vastly more efficient option; however, the increased train traffic would create additional modal conflicts at highway-railroad crossings, as well as stress existing rail infrastructure (Moffatt and Nichol 2017).

Freight Growth and Port of Wilmington Demand Forecast

The Port of Wilmington has seen remarkable growth, especially to its container business which saw 26 percent growth in TEUs between 2017 and 2018 making it the fastest-growing container port in the US during this time period. According to the 2017 *Wilmington Rail Improvements* report, the existing rail infrastructure of the Beltline and the Port will not sustain anticipated freight traffic volumes. The report notes that both the Beltline and Port rail lines would require additional investment to increase velocity and capacity to mitigate roadway congestion occurring when trains pass highway-rail intersections. In addition, rail infrastructure improvements would be needed to accommodate rail volume increases over time (Mott MacDonald 2017).

Currently, approximately 1 million tons or 40 percent of the Port's bulk and breakbulk freight traffic is moved by rail. The Port has established a goal of 25 percent for container movements by rail by 2025 and is emphasizing container movement by rail over truck, attempting to grow rail usage while maintaining current levels of port-generated container truck traffic (Mott MacDonald 2017).

Currently, the Port reports between five and seven daily train services per week, each with a round trip between the Port and Davis Yard in Navassa. By 2025, forecasted container movements would require eight train pairs per week or 16 movements over the Beltline between the Port and Navassa.

According to the *Evaluation of Efficiency and Effectiveness of State Ports at Wilmington and Morehead City* report, rail competition was one of four main areas of critical need for capital expansion for the Port of Wilmington. It noted the Port's lack of rail services necessary for competitive pricing and noted some port shippers have utilized other state terminals to meet their needs (North Carolina General Assembly 2019).

Train lengths today are averaging 3,500 feet, or about 70 rail cars per train; however, to enhance operational efficiency, CSXT endeavors to operate trains of 10,000 feet in length (AECOM 2018). While this change could reduce the number of trains, it would mean longer trains traveling the Beltline through Wilmington. Trains of 10,000 feet may require 10 to 15 minutes or more to pass a given point or pass over a highway crossing (Mott MacDonald 2017).

1.5.2 Improved Safety

Current rail traffic in the Project Study Area results in congestion, safety and noise impacts to the surrounding communities and businesses. Up to eight scheduled trains in a day operate on the Beltline. This number includes the two trains per day reported by the Port. Each trip involves crossing one or more of the 32 at-grade crossings and the sounding of a train whistle four times at volume levels between 96 and 110 decibels for each at-grade crossing as required by Train Horn Rule (49 CFR Part 222). Interactions between the freight trains and road users at grade crossings generate negative community impacts through two primary highway-rail interactions: accidents and highway delays while crossings are blocked by trains. Highway delays at grade crossings increase travel times, vehicle operating costs, and emissions while vehicles idle at blocked grade crossings. These interactions are a safety concern for the community as well as a drain on its economic competitiveness, as productivity and access are negatively impacted.

As noted, trains on the Beltline are operating under restricted speeds of approximately 10 mph, which means it can take trains of 10,000 feet 10 to 15 minutes or more to completely pass a road crossing and for roadway traffic to resume moving (Mott MacDonald 2017). The time that the crossing is blocked causes driver anxiety, fatigue and frustration, which can contribute to unsafe driving.

The exposure index at grade crossings is one measure of the overall safety risk. The exposure index is calculated by multiplying the number of trains per day by the number of vehicles per day that use the crossing. As a general rule, grade separations should be considered when the

exposure index is 30,000 or more in urban areas or 15,000 or more in rural areas. Based on 2014-2015 average annual daily traffic (AADT) of the existing at-grade crossings within the Project Study Area, the following crossings have an exposure index that exceeds this criterion: N. 23rd Street (SR 1302), Market Street (US 17), Covil Avenue, Wrightsville Avenue (SR 1411), Oleander Drive (US 76), S. 17th Street (SR 1219), S. 16th Street (SR 1218), S. 3rd Street (US 421), and S. Front Street (SR 1140) (FRA 2020) (Moffat and Nichol 2017). Table 2 in the Appendix identifies the current exposure index at all at-grade crossings within the Project Study Area.

School and transit buses are required to come to a complete stop at all rail crossings, even those with no passengers, and therefore contribute to delay and congestion on roadways, particularly during morning and afternoon runs. Of the 32 at-grade crossings within the Project Study Area, 23 crossings interact with dozens of school buses each day. Additionally, all the above-mentioned high exposure index crossings are crossed by school buses between 21 and 45 times a day. Highway-rail at-grade crossings also increase safety hazards near schools where children walk or bike to school. One school is located in proximity to the existing railway.

Many of the roadways in the Project Study Area serve as primary emergency response routes. Emergency vehicles can be delayed at crossings as trains cross or by other vehicular congestion near crossings. Additionally, due to the proximity of at-grade crossings, longer trains could block several north-south roads between the hospital and downtown Wilmington. New Hanover Regional Medical Center is the only trauma center in the region. The medical center is located on S. 17th Street south of the Beltline from Central Wilmington. Other safety considerations at crossings are listed in Table 3 in the Appendix and include the following:

- Train derailment and hazardous materials: in 2013 a train carrying hazardous materials derailed cutting off access to a community in Wilmington.
- Skewed crossing: Angled railroad crossings create sight restrictions because motorists must turn their heads more than 90 degrees to see oncoming trains. Crossings with skews less than 60 degrees include: Market Street (US 17), Wrightsville Avenue (SR 1411), Marstellar Street, Martin Street, Front Street (SR 1140), and Myers Street. Market Street, Wrightsville Avenue and Front Street are also among the highest volume roadways crossed by the rail line.
- Humped crossing: exists where the elevation of the railroad is higher than the crossing roadway, requiring cars or trucks to reduce speed to cross and causing potential "bottoming out" of vehicles with long wheelbases or low clearances. The problem is exacerbated by routine track maintenance that can add about three inches of ballast per occurrence. Forest Hills Drive and S. 12th Street crossings have a humped profile.
- Poor crossing surface: the crossing surface can result in a rough ride and cause wear and tear on vehicles, creating a traffic safety hazard and adding to congestion by reducing travel

speeds. Crossings that have surfaces in need of improvements or rehabilitation include: Marstellar Street, S. 16th Street, S. 17th Street, Wrightsville Avenue, Market Street (US 17), Princess Place Drive, N. 30th Street, N. 23rd Street, and King Street.

- Automated gate issues: drivers may circumvent automated gates, particularly when the gates are lowered but no train is visible, gates fail and remain in the lowered position, or gates are lowered and the train is visible but the motorist is too impatient to wait.
- Vehicles queuing across railroad tracks: the presence of nearby traffic signals, intersections, or parallel roadways can result in queues of stopped vehicles extending onto or across a rail crossing.
- Insufficient warning device: typical warning devices include signs, gate arms, flashing lights, and bells but several crossings along the Beltline do not have any warning devices or could benefit from enhanced warning devices.

Population and associated vehicular traffic are expected to continue to increase in Wilmington and surrounding areas over the next 20 years. Coupled with increased freight rail traffic, both in number of trains and length of trains, to the Port the exposure index and inherent safety risks will increase over time. Safety concerns have led to studies of strategies to enhance public safety at highway-rail at-grade crossings.

As discussed in the 2017 *Wilmington Rail Improvements* report, in order to increase train speeds from 10 mph to 25 mph, and decrease delay at crossings, the following modifications would be required:

- Upgrade warning devices and install flashers and gates and implement recommendations of 2017 Wilmington TSS
- Rehabilitation of rail and tie structure of approximately 10 miles of track including installing new crossties, applying new track ballast, and surfacing the track to bring the track to uniform profile, line, and surface and replace any existing 100-pound rail with 132-pound or greater
- Modifications to the movable bridges
- Curve improvement at Old Smith Creek Yard (between McRae Street and King Street)
- Curve improvements at Fernside Junction (just south of Market Street near Kerr Avenue)
- Change in CSXT operating policy from "Yard Limits Operation" to "Manual Block Operation"

Increased track speed is a contributing factor in increasing the risk exposure index at a crossing, so improvements of this nature will be offset, in part, by increased risk. The Cape *Fear Transportation 2040* plan identifies fourteen freight rail improvements in Wilmington, some of which would reduce car-train conflicts at crossings.

As part of other transportation improvements ongoing in the Project Study Area, NCDOT's P-5740 Wilmington Beltline Improvements Project is proposing to remove three at-grade crossings as well as make improvements to 23 of the 32 at-grade crossings. Improvements include signal upgrades and median/sidewalk installation. Improvements are proposed at the following locations: Cedar Hill Drive, King Street, 23rd Street, 30th Street, Princess Place Drive, Henry Street, Market Street (high exposure crossing), Covil Avenue (high exposure crossing), Mercer Avenue, Forest Hill Drive, Colonial Drive, Wrightsville Avenue (high exposure location), Oleander Avenue (high exposure location), 17th Street (high exposure crossing), 16th Street (high exposure crossing), Marstellar Street, 13th Street, 12th Street, 10th Street, 8th Street, 7th Street, 6th Street, 5th Street, 4th Street.

1.5.3 Improved Regional Mobility and Reliability

The roadway delays associated with at-grade crossings result in increased travel times for road drivers and their passengers as they wait for trains to travel through grade crossings. Such delays impose societal costs, contributing to increased vehicle operating costs as well as the costs associated with increased emissions. Improving the modal relationships at crossings and enhancing modal options by which freight can travel serve to improve overall regional mobility for both public and commercial interests. The Project would allow for increasing volumes of freight trains to travel between the Davis Yard and the Port of Wilmington without further disruption to vehicle operations in the City of Wilmington. CSXT has indicated they would like to utilize the corridor for the maximum 12 trains per day and have begun running its daily Queen City Express intermodal train between the Port and Charlotte (AECOM 2018).

Port Accessibility

As noted in the 2017 Feasibility Study, the network of trade that includes the North Carolina ports of Wilmington and Morehead City, plus inland terminals in Charlotte and Greensboro, linked to these ports by freight rail, provide a vital connection between the State's consumers, businesses, industry and the world market. According to the NCDOT, this network contributes statewide to 76,000 jobs and $700 million each year in state and local tax revenue.

The *North Carolina Ports 2018 Economic Impact Study,* prepared by the Institute for Transportation Research and Education (ITRE) in 2018, noted that the large difference in the North Carolina ports output and employment contribution compared to that of other neighboring states' ports mainly reflects differences in existing transportation infrastructure. Ports in nearby east coast states move substantially more tonnage than the North Carolina's two ports (Wilmington and Port of Morehead City). In comparison North Carolina's ports move approximately 1/6 of the tonnage of the Georgia ports and about 1/4 of the tonnage of the South Carolina ports (ITRE 2018).

Neighboring ports benefit from better rail and highway connections than Wilmington and Morehead City. CSXT provides the only Class 1 rail service to the Wilmington area. There is no connection to Norfolk Southern (NS), the other Class I railroad operating in the east. This places the Port of Wilmington at a competitive disadvantage as all other competing east coast ports are served by at least two Class 1 railroads. Inadequate connectivity is a contributing factor limiting the geographical area that a port can serve; therefore, the NC ports at Wilmington and Morehead City have a markedly smaller economic impact than competing ports that are better supported. The ITRE 2018 study concluded that it is highly likely that if North Carolina were to improve the infrastructure that impacts the Port's ability to attract cargo, there would be an increase in employment, output, income and tax collections that would exceed the cost of the investment.

1.6 PROJECT BENEFITS

1.6.1 Primary Benefits

By evaluating the needs of the Project in order to determine why improvements to the rail transportation system in the project area are needed, the Project is anticipated to result in the following primary benefits.

- Improve operational fluidity: The Project would create a more efficient freight rail route between Navassa and the Port of Wilmington resulting in travel time savings and increased throughput capacity.
- Improve regional transportation mobility and reliability: The Project proposes to eliminate the potential for freight rail operations to obstruct regional public mobility. Vehicular traffic as well as the length and frequency of freight trains are expected to grow rapidly in the region. Reliability of travel in the region would improve as crossing conflicts and delays across Wilmington's main thoroughfares are reduced. Also, compared to the existing freight rail route, newer infrastructure would require less downtime for maintenance.
- Improve resiliency: The resiliency of the sole freight rail route serving the region would be improved by providing higher river crossings and infrastructure better designed to mitigate flood related damages. As storms and hurricanes increase in frequency and intensity, flooding becomes a common occurrence. During Hurricane Florence in 2017, I-40, US 421, and other major highway routes into Wilmington, as well as sections of the CSXT railroad were flooded or washed out making it difficult to transport supplies into Wilmington.
- Improve safety: The Project would considerably reduce the number of crossing conflicts between vehicles and freight trains on the route through Wilmington. Eliminating crossing conflicts also eliminates the risk of fire and emergency response times being inhibited by passing trains, thereby enhancing the opportunity to save lives and property.

1.6.2 Secondary Benefits

Although not expressly part of the purpose and need for the federal actions under consideration for the Project, the relocation of freight rail operations to an alternate route would have numerous additional benefits for the City, Counties and other neighboring jurisdictions. These secondary benefits include the following.

- Reducing the impacts of cars idling for substantial periods due to long freight trains would reduce vehicle operating costs and fuel use and result in emissions savings at the grade crossings.
- Potential betterment of City air quality due to reductions in length of time of idling vehicles and enhanced capability to shift traffic from truck to rail.
- Potential betterment of water quality from reduction in standing vehicles and associated oil drippings and enhanced capability to shift traffic from truck to rail.
- Eliminate or significantly curtail noise from train horns due to freight trains being realigned across the Cape Fear River to a route with far fewer, or zero, public at-grade crossings. Train signals are required to be heard between 96 and 110 decibels from a distance of 100 feet, with four horn blasts per crossing.
- Lower highway maintenance, fuel usage and emissions from trucks as more containers are converted to freight rail.
- Improved freight rail access to existing business properties along US 74/US 421 on the west side of the Cape Fear River.
- Increased property values for properties adjacent to the existing rail line as noise and other nuisances are removed.
- Enhance separation between Port expansion plans and residential opposition.

In addition, repurposing the existing rail corridor through the City for public transit use could provide a number of other potential benefits:

- Likely increase in redevelopment and land values in proximity to transit nodes.
- Possible increase in City's population density around transit stops.
- Offer other mobility options for citizen in the study area.
- Reduces demand for surface parking lots and parking decks, particularly in downtown Wilmington and near UNCW.
- Promotes walking and biking as other mobility options in the City.
- Decreased automobile dependency.
- Repurposed use of existing/vacant/underutilized infrastructure along trolley corridor
- Reduction of vehicle ownership due to transit options.
- Ability to deliver students and university employees to UNCW from within the City limits.

- Leverage existing surface parking near the transit corridor during major events to bring large volumes of people downtown to the Northern Riverfront Park, Pier 33, Thalian Hall, Cape Fear Community College, or specific events such as the Azalea Festival, Riverfest, Independence Day Fireworks, etc.

1.7 PROJECT BACKGROUND

1.7.1 Project History & Related Studies

When originally constructed, the Beltline was outside the developed limits of the City; however, over time the city has expanded, and today the rail line is in the most densely populated areas of Wilmington and New Hanover County, passing through numerous neighborhoods and frequently crossing busy city streets. In November 2014, the City of Wilmington passed a resolution encouraging WMPO, NCDOT and CSXT to complete a feasibility study to evaluate the relocation of the CSXT rail line to the west of the Cape Fear River to eliminate these conflicts and provide a more direct route between the CSXT Davis Yard in Navassa and the Port of Wilmington. In 2017, the City of Wilmington completed the *Wilmington Rail Realignment and Right of Way Use Alternatives Feasibility Study* (Feasibility Study) that investigated the feasibility of realigning the existing CSXT Beltline (Moffatt and Nichol 2017). The study looked at three potential options for a new freight rail corridor west of the Cape Fear River and shifting of the freight traffic to this corridor. Moving this line would also offer the potential of repurposing the existing CSXT railroad corridor for transit and/or bicycle/pedestrian use within the City of Wilmington.

Also, in 2017, the NCDOT Rail Division along with local government partners completed a traffic separation study of 26 existing at-grade roadway-railroad crossings along a 6-mile span of the CSXT rail line in Wilmington. The Wilmington Traffic Separation Study (STV 2017) evaluated short, medium, and long-term improvements to at-grade rail crossings.

A related study, "Landside Rail Improvements Service to the Port and Moving Trains Safely Through the Community" (Mott MacDonald 2017) evaluated the Port's forecasted demand and existing rail infrastructure, including track capacity and condition of the CSXT Beltline, as well as on Port property, and concluded that the existing rail infrastructure would not sustain anticipated traffic volumes. The report further notes substantial cost savings for shippers if freight is shifted from highway truck to intermodal rail for the Wilmington to Charlotte haul.

In 2018, the City of Wilmington prepared a grant application for the FRA's Consolidated Rail Infrastructure and Safety Improvements (CRISI) program to fund preliminary engineering and NEPA studies for the Wilmington Rail Realignment Project (AECOM 2018). The application was awarded up to $2M in federal funding. A benefit-cost analysis (BCA) prepared in support of the

CRISI application evaluated the economic impacts of the following effects of realigning the existing CSXT rail line:

- Effects on system and service performance, including freight train operating cost savings
- Effects on safety, competitiveness, reliability, trip or transit time, and resilience
- Expected crash cost savings by avoiding conflicts with trains
- Value of passenger time saved as a result of avoiding train delay
- Vehicle operating cost savings as a result of avoiding train delay
- Emissions saved as a result of avoiding train delay
- Value of improved fire truck response time
- Value of improved EMS response time
- Reliability benefit
- Train emissions savings
- Residual value
- Efficiencies from improved integration with other modes and expected benefits of a transit system in the abandoned corridor

The BCA concluded that the economic net benefit of the project would be $546.7M to $1.562B (in 2017 dollars).

1.7.2 Relationship with Other Modes

Wilmington is supported by a multimodal transportation network making it accessible to residents, business travelers, and tourists. This network includes major streets and highways, local streets, freight rail lines, river traffic, airline travel, public transit, bikeways, trails and greenways, and sidewalks. The existing network is shown on Figure 2.

Existing Road Network

I-95, the primary north-south route in the eastern United States, is approximately 92 miles north of Wilmington via I-40 and approximately 75 miles west of Wilmington via US 74. I-40 enters New Hanover County from the north and terminates at College Road (US 117/NC 132) just north of the Wilmington city limits. College Road continues into Wilmington as a four- to six-lane principal arterial. Within the city limits, College Road has numerous driveway accesses and at-grade intersections. I-140 splits from I-40 north of Wilmington and continues west to terminate at US 17 in New Hanover County, providing a bypass around the northern and western portions of Wilmington.

Access to Wilmington from the west is limited by Brunswick River, Cape Fear River, and Northeast Cape Fear River. US 421 and US 74 enter Wilmington via the Isabel Holmes Bridge over the

Northeast Cape Fear River. East of the Isabel Holmes Bridge, Martin Luther King (MLK), Jr. Parkway (US 74) splits around the north side of the city, while 3rd Street leads south into downtown Wilmington. There are plans to upgrade existing US 74 to an Interstate facility from Richmond County to Columbus County, just west of Brunswick County. Further south, US 17 Business/US 76/US 421 crosses Eagles Island and the Cape Fear Memorial Bridge from Brunswick County to 3rd Street in Wilmington.

Other major north-south routes in Wilmington include Front Street, Carolina Beach Road (US 421), Oleander Drive (US 76) and Independence Boulevard. East-west roads include Market Street, Wooster Street/Dawson Street (US 17 Business/US 76), and Shipyard Boulevard (US 117). Shipyard Boulevard is a four-lane divided roadway with no control of access and numerous driveways, cross streets, and signalized and unsignalized intersections that provides access to the south gate at the Port.

The CSXT Beltline travels through the urbanized area of Wilmington with approximately 32 at-grade rail crossings (30 public crossings and two private crossings) within the Project Study Area.

In addition, the CSXT Beltline contains five (5) grade-separated crossings within the Project Study Area. One of the at-grade track crossings is the River to the Sea Bikeway (WMPO Bicycle Route 1), an 11-mile on- and off-road bicycle route that follows the Historic Beach Car Line which carried vacationers from Wilmington to Wrightsville Beach by trolley. The bikeway is comprised of neighborhood residential streets, off-road multi-use paths, and a few busy arterial roadways.

Port of Wilmington

The Port of Wilmington is North Carolina's largest port and is within 700 miles of more than 70 percent of the industrial base of the US. The Port is owned and operated by the North Carolina State Ports Authority (NCSPA). In addition, the Port of Wilmington has been designated by the US Department of Defense as one of 16 strategic seaports capable of simultaneously handling commercial and military requirements.

The Port has an operating terminal of 284 acres on the eastern bank of the Cape Fear River, handling containers and a variety of bulk and breakbulk cargo. The Port has completed several expansion projects and studies to accommodate larger ships and more containers in the future. Vehicular and truck access to the Port is via US 17, US 117, US 75/I-74, US 421, I-40, and I-140 to two gates at the port. The North Gate, the general cargo entrance, is accessed from Burnett Boulevard south of Carolina Beach Road. The South Gate, which is the container entrance, is accessed from Shipyard Boulevard (US 117). Substantially more containerized freight coming into and leaving the Port is transported by truck rather than rail.

Airports

The Wilmington International Airport (ILM) is located just northeast of the City of Wilmington and can be accessed from MLK, Jr. Parkway (US 74) or NC 133 via 23rd Street and Airport Boulevard. The airport is operated by the New Hanover County Airport Authority.

The ILM Business Park is located on airport property and includes 140 acres of land for development with access to the CSXT rail line and highways (MLK, Jr. Parkway/US 74, I-40 and I-140). Current tenants include the VA Medical Clinic, Wilmington Business Development, 84 Lumber, Toshiba Business Solutions, All American Aviation Services and Superior Mechanical.

Public Transportation

The Cape Fear Public Transportation Authority, operating as Wave Transit, serves the City and the surrounding areas. Wave Transit provides a variety of transportation options to the citizens of Wilmington and the surrounding areas. Services provided include bus, trolley (Port City Trolley), rideshare/vanpool (WavePool), shuttles, paratransit and bikes-on-bus. These options include Dial-a-Ride (paratransit) for the region's disabled and elderly citizens and the UNCW Seahawk shuttle for the college students. According to the website, Wave Transit served 1.25 million riders in FY 2018-2019. This includes fixed routes, the UNC Seahawk shuttle and paratransit.

Under normal operating circumstances, 16 fixed routes serve the City and the surrounding areas, including northern Brunswick County, Leland, Navassa, and southern New Hanover County beaches, as well as connecting service to Pender County. In addition, Port City Trolley provides free trolley service in historic Wilmington with hop-on, hop-off service. The *Transit Needs Study for the Wilmington Multimodal Transportation Center* (2009) indicates that future phases of the WMTC could include a passenger rail station. Wave Transit opened the new Wilmington Multimodal Transportation Center (WMTC), Laura W. Padgett Station, in January 2020. The station will serve as a hub for local bus service (Wave Transit), inter-city bus service (Greyhound), the trolley, human-service transportation, and taxis. Additionally, passenger rail service in Wilmington remains a goal in the statewide rail plan, the *Transit Needs Study for the Wilmington Multimodal Transportation Center* notes the WMTC could include more than one rail service operation from Wilmington (Martin Alexiou Bryson 2009).

Passenger Rail

While there is currently no passenger rail service to Wilmington, the 2015 Comprehensive Statewide Rail Plan identified Raleigh to Wilmington (and intermediate points) for future service via either Goldsboro or Fayetteville (NCDOT 2015). The *Cape Fear Transportation 2040* plan also

notes the goal of re-instating passenger rail access to/from Wilmington and major East Cost destinations using this restored Wilmington & Weldon line between Castle Hayne and Wallace (via Goldsboro). Further, the corridor to/from the WMTC is owned by NCDOT and has been protected to allow for future use (WMPO 2015).

Bicycles and Pedestrians

Goals for bicycle and pedestrian enhancements in Wilmington are defined in two plans: *Walk Wilmington: A Comprehensive Pedestrian Plan* (2009) (City of Wilmington 2009) and the *Wilmington-New Hanover County Comprehensive Greenway Plan* (2013) (City of Wilmington 2013). The Comprehensive Pedestrian Plan describes the existing pedestrian system noting key barriers to walking in Wilmington and identifies priority areas for pedestrian movements. The Comprehensive Greenway Plan provides a framework for local governments and project partners to successfully establish a comprehensive network of greenways throughout Wilmington and New Hanover County.

Additionally, the City of Wilmington's 2017-2020 Strategic Plan provides goals and objectives derived from citizen input in order to ensure the city is moving towards a desired vision. Enhancing bicycle and pedestrian infrastructure is a common strategy outlined in the plan (City of Wilmington 2016).

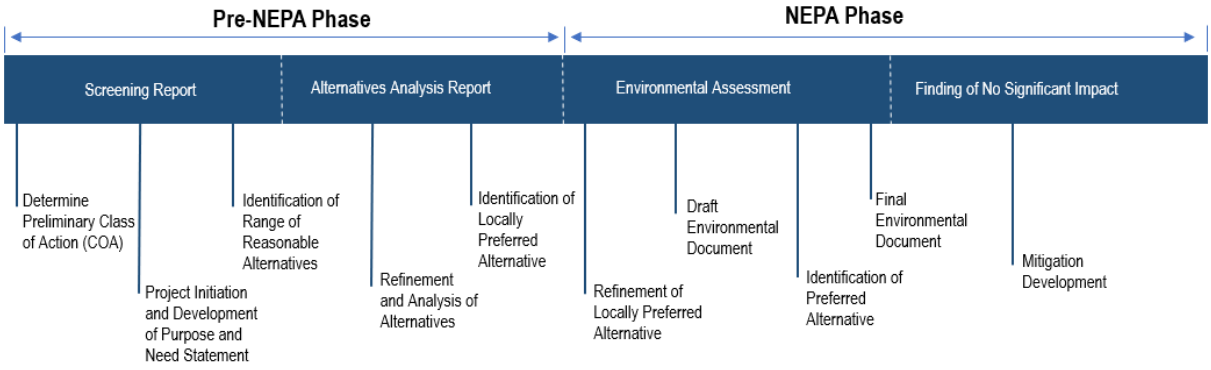
Major bicycle and pedestrian trails in the Project Study Area include:

- East Coast Greenway
- Gary Shell Cross-City Trail
- River to the Sea Bikeway (RSB)
- North Carolina Bicycling Highway 3 (Ports of Call)
- North Carolina Bicycling Highway 5 (Cape Fear Run)

1.8 PLANNING PROCESS

The study process for the Project is being conducted in phases. The first phase is a Screening Report that will identify feasible alternatives that could be considered for the proposed project based on their ability to meet the stated purpose and need for the project and a review of potential environmental impacts. The second phase involves a more detailed Alternatives Analysis with the goal of further refining, evaluating, and eliminating alternatives to identify a Locally Preferred Alternative. The third phase will include preliminary engineering and an environmental review in accordance with NEPA of the Preferred Alternative. An Environmental Assessment will be prepared to determine whether the Project has the potential to cause significant environmental effects. If the FRA determines the Project will not have significant environmental impacts, the

agency will issue a Finding of No Significant Impact (FONSI). A FONSI is a document that presents the reasons why the agency has concluded that there are no significant environmental impacts projected to occur upon completion of the Project.



1.8.1 Regulatory Requirements

The Rail Realignment Project is subject to the requirements of the Council on Environmental Quality (CEQ) Guidelines, which provide direction regarding implementation of the procedural provision of the National Environmental Policy Act (NEPA) of 1969. In addition, NEPA documentation for the project will address the following federal and state regulations:

- **Federal Railroad Administration Environmental Procedures**
  Per the requirements of NEPA, FRA is committed to the examination and avoidance of potential impacts to the social and natural environment when considering approval of proposed rail projects. FRA's Procedure's for Considering Environmental Impacts (Federal Register, Vol. 64, No. 101), provide the agency's guidance for implementing NEPA. In addition, the FRA also uses regulatory guidance for implementing NEPA contained in 23 CFR Parts 771 and 774.
- **Clean Water Act**
  The Clean Water Act of 1977 (33 U.S.C. § 1251) establishes the basic structure for regulating discharges of pollutants into the Waters of the United States (as defined in 33 CFR Park 328.3) and regulating quality standards for surface waters. The US Army Corps of Engineers (USACE) is responsible for permitting discharges into Waters of the US under Section 404 of the Clean Water Act (33 USC 1344), while NC Division of Water Resources issues a Water Quality Certification under Section 401 and NCGS Chapter 143 Article 21, Part 1).
- **Rivers and Harbors Act**
  The US Coast Guard (USCG) administers Section 9 of the Rivers and Harbors Appropriation Act of 1899 and the General Bridge Act of 1946, which regulate construction of new bridges or causeways or reconstruction/modification of existing bridges or causeways over navigable

waters. The Cape Fear River and Northeast Cape Fear River are navigable waterways. USACE also has authority under Section 10 of the Rivers and Harbors Act.

- **National Historic Preservation Act of 1966 (NHPA)**

  National Historic Preservation Act (NHPA) preserves historical and archaeological sites in the U.S. Section 106 of the NHPA requires agencies using Federal funds to identify historic properties and consider the effects of their projects on those historic properties. Final Section 106 Program Comment for Rail Rights-of-Way (published in the Federal Register on August 24, 2018) excludes from the Section 106 consultation process routine activities affecting active transportation rights-of-way.

  Section 110 also provides particular protection for National Historic Landmarks. Section 110 indicates that, "Prior to the approval of any Federal undertaking which may directly and adversely affect any National Historic Landmark, the head of the responsible Federal agency shall, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to such landmark, and shall afford the ACHP a reasonable opportunity to comment on the undertaking."

- **Title VI of the Civil Rights Act of 1964**

  Together with related statues and regulations, Title VI provides that "no person shall on the grounds of race, color, and national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal funds. The entire institution, whether educational, private, or governmental must comply with Title VI and related Federal civil rights laws, not just the program or activity receiving federal funds." Executive orders regarding environmental justice and outreach to persons with limited English proficiency are also regulated under Title VI of the Civil Rights Act.

- **Executive Order 12898**

  Pursuant to Executive Order 12898, Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations, federal agencies (and recipients of federal monies) must identify and address disproportionately high and adverse human health and environmental effects on minority and low-income populations. Traditionally underserved groups such as low-income and minority populations must be identified and given increased opportunity for involvement in order to ensure effective participation.

- **Endangered Species Act**

  Species with the federal status of endangered (E), threatened (T) are protected under provisions of the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 et. seq.). Any action likely to adversely affect a species classified as federally protected will be subject to review by the US Fish and Wildlife Service (USFWS).

- **US Department of Transportation Act of 1966, Section 4(f)**
  Section 4(f) (23 CFR Part 774) applies only to federally funded or federally permitted transportation projects and the project's impacts on historic sites ("historic" sites are defined as those on or eligible for the National Register of Historic Places/NRHP) or publicly-owned parks, recreation areas, and wildlife and waterfowl refuges.
- **Coastal Area Management Act**
  North Carolina's Coastal Area Management Act of 1974 (NCGS 113A-100 et seq.) applies to 20 coastal counties and is regulated by the NC Division of Coastal Management (DCM). Brunswick and New Hanover Counties are coastal counties.
- **Floodplain Management**
  Protection of floodways and floodplains is required under 23 CFR 650A; EO 11988, Floodplain Management; and US Department of Transportation (USDOT) Order 550.2, Floodplain Management and Protection. The intent of these regulations is to avoid or minimize highway encroachments within the 100-year (base) floodplains or regulatory floodway, where practicable, and to avoid supporting land use development that is incompatible with floodplain values.

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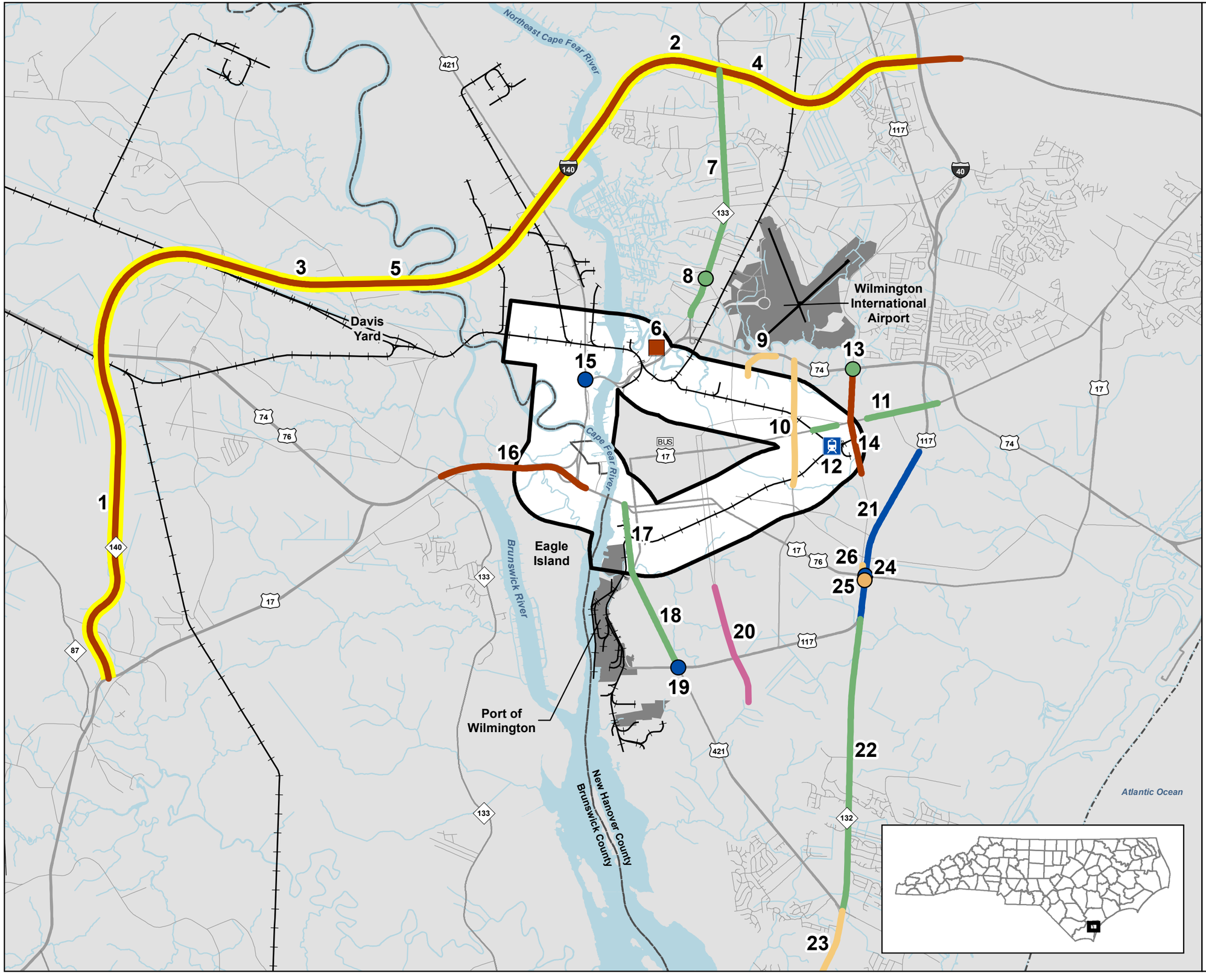
APPENDIX

Table 1: 2020-2029 STIP Projects in the Project Vicinity

STIP No.	Map No.	Description	ROW/Construction
I-6036	1	I-140 from US 17 to north of US 74. Pavement rehabilitation.	-/2025
I-6037	2	I-140 from US 421 to I-40. Pavement and bridge rehabilitation.	-/2026
I-6038	3	I-140 from US 421 to US 74/US 76. Pavement rehabilitation.	-/2029
I-5760A	4	I-140. Open graded friction course.	Under Construction
R-2633D	5	I-140/US 17 Wilmington Bypass. Implementation of Intelligent Transportation Systems (ITS)	Under Construction
B-4590	6	NC 133. Replace bridge 640029 over Smith Creek.	Complete/2022
U-5863	7	NC 133 (Castle Hayne Road) from I-140/US 17 (Wilmington Bypass) to SR 1310 (Division Drive) in Wilmington. Widen to multi-lanes.	2025/2030
U-5954	8	NC 133 (Castle Hayne Road) at North 23rd Street. Construct a roundabout.	2025/2027
U-5926	9	New route from SR 1302 (23rd Street) to 26th Street. Construct new route on new location. Economic development project.	2020/2022
U-4434	10	SR 1209 (Independence Boulevard Extension) from Randall Parkway to US 74 (MLK, JR. Parkway) in Wilmington. Multi-lanes on new location.	2022/2028
U-4902B	11	US 17 Business (Market Street) from CSXT Railroad to Cinema Drive; Jacksonville Street to North of US 117/NC 132 (College Road).	In Progress/2029
P-5740	12	CSXT SE Line. Tie and rail rehabilitation. Improvements to highway grade crossings, curve re-alignments and upgrade switch operations. Close and improve various existing at-grade crossings.	2021/2022
U-3338C	13	SR 1175 (Kerr Avenue) interchange at US 74 (MLK, Jr. Parkway)	In Progress/2030
U-3338B	14	SR 1175 (Kerr Avenue) from Randall Parkway to US 74 (MLK, Jr. Parkway).	Under Construction

STIP No.	Map No.	Description	ROW/Construction
U-5731	15	US 74 at US 17/US 421. Construct a fly-over and free flow ramp at interchange.	2024/2028
R-3601	16	US 17/US 74/US 76 from NC 133/SR 1472 (Village Road) interchange to the US 421/NC 133 interchange. Add additional lanes on north and southbound lanes and widen bridge 090107 and 090108	Under construction
U-5734	17	US 421 (South Front Street) from US 17 Bus/US 76/US 421 (Cape Fear Memorial Bridge) to US 421 (Burnett Boulevard) in Wilmington. Widen to multi-lanes	2029/2031
U-5729REG	18	US 421 from US 421 (Burnett Avenue) to US 117 (Shipyard Boulevard) in Wilmington. Upgrade roadway.	In Progress/2029
U-5729SW	19	US 421 at US 117 (Shipyard Boulevard) intersection improvements.	In Progress/2029
EB-5600	20	SR 1219 (South 17th Street) from Hospital Plaza to Independence Boulevard. Construct multi-use path.	-/2022
U-5702A	21	NC 132 (College Road) from SR 1272 (New Centre Drive) to US 117 (Shipyard Boulevard). Access management and travel time improvements.	2024/2031
U-5702B	22	NC 132 (College Road) from US 117 (Shipyard Boulevard) to US 421 (Carolina Beach Road). Access Management and travel time improvements.	2025/2030
U-5790	23	US 421 (Carolina Beach Road) from NC 132 (South College Road) to Sanders Road in Wilmington. Widen existing roadway and construct flyovers at US 421 and NC 132.	2022/2024
U-5704	24	NC 132 (College Road) at US 76 (Oleander Drive) intersection improvements.	2029/2031
U-6199	25	Wilmington Citywide Signal System	2028/2030
U-6201	26	SR 1175 (Kerr Avenue) from SR 1411 (Wrightsville Avenue) to US 76 (Oleander Drive). Construct roadway on new location.	2028/2030

Source: NCDOT 2020



CITY OF WILMINGTON NORTH CAROLINA

Wilmington Rail Realignment Project

New Hanover County and Brunswick County, NC

Figure 4
Other Projects

Date: November 2020

Legend

- Study Area
- County Boundary
- Railroad
- Transition Highway
- Statewide Highway
- Regional Highway
- Division Highway
- Interstate Maintenance
- Division Bicycle And Pedestrian
- Statewide Highway
- Regional Highway
- Division Highway
- Bridge
- Statewide Rail

0 0.75 1.5 3

Miles

1 inch = 7,000 feet

Source: NCDOT Current 2020-2029 STIP

Table 2: At-Grade Railroad Crossings in the Project Study Area

Crossing Number	Route	AADT[2]	Trains per day[1,2]	Roadway Posted Speed (mph)[2]	Truck %[2]	Avg. No of Daily School Buses[2]	Exposure	Crashes[1]
628739Y	N. 6th Street	2,000	7	35	3	0	14,000	-
628741A	Hilton Street	N/A	7	35	N/A	0	-	-
629284Y	King Street	1,120	2	25	1	32	2,240	1 (2016 – vehicle stalled on RR)
629286M	N. 23rd Street (SR 1302)	15,875	2	35	1	45	31,750	-
629287U	N. 30th Street (SR 1302)	3,664	2	25	1	54	7,328	-
629288B	Princess Place Drive (SR 1301)	9,155	2	35	1	78	18,310	-
642724T	Clay Street	307	2	35	1	2	614	1 (2013 – vehicle struck)
629289H	Henry Street	429	2	25	0	1	858	-
629290C	Market Street (US 17)	35,920	2	40	8	37	71,840	-
629426M	Covil Avenue	17,294	2	35	4	21	34,588	-
629427U	Mercer Avenue	997	2	25	1	32	1,994	-
629428B	Forest Hills Drive	821	2	25	1	5	1,642	-
629429H	Colonial Drive	3,837	2	25	1	29	7,674	-
629430C	Wrightsville Avenue (SR 1411)	18,343	2	35	5	36	36,686	-
937501V	River to Sea Bikeway	-	2	N/A	N/A	N/A	-	-
629431J	Oleander Drive (US 76)	26,998	2	40	9	45	53,996	-
629432R	S. 17th Street (SR 1219)	17,398 (21,000)	2	35	7	32	34,796	-
629433X	S. 16th Street (SR 1218)	17,194	2	45	8	29	34,388	-
629434E	Marstellar Street	1,360	2	35	1	0	2,720	-

Crossing Number	Route	AADT[2]	Trains per day[1,2]	Roadway Posted Speed (mph)[2]	Truck %[2]	Avg. No of Daily School Buses[2]	Exposure	Crashes[1]
629435L	S. 13th Street	2,797	2	35	1	37	5,594	-
629436T	S. 12th Street	201	2	35	1	8	402	-
629437A	S. 10th Street	523	2	35	1	2	1,046	-
629438G	S. 9th Street	570	2	35	1	8	1,140	-
629439N	S. 8th Street	763	2	35	1	9	1,526	-
629440H	S. 7th Street	574	2	35	0	7	1,148	-
629441P	S. 6th Street/Martin Street	576	2	35	1	0	1,152	-
629442W	S. 5th Street	2,214	2	35	1	0	4,428	-
629443D	Martin Street at Hooper Street	393	2	35	1	0	786	-
629445S	S. 4th Street	256	2	35	1	0	512	-
629446Y^	S. 3rd Street (US 421)	18,631	2	35	2	45	37,262	-
629448M^	S. Front Street (SR 1140)	15,930 (23,000)	2	35	8	9	31,860	-
902753X^	Greenfield Street	-	2	35	N/A	0	-	-

Sources: [1]Moffat and Nichol 2017

[2]FRA 2020

(note: AADT volumes included in the Crossing Inventory Data are from 2014-2015)

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Table 3: Safety Concerns at Grade Crossings

Crossing	Safety Concern				NCDOT P-5740 Safety Improvement
	Skewed Crossing (<60 degrees)	Humped Crossing	Poor Crossing Surface	Insufficient Warning Device	
Cedar Hill Road (SR 1430)	-	-	-	-	Gates Median Barrier
Private Road near Quality Drive	-	-	-	-	-
N. 6th Street	-	-	-	-	-
Hilton Street	-	-	-	-	-
King Street	-	-	X (P-5740)	X (P-5740)	Signals/Gates Realign/Resurface
N. 23rd Street (SR 1302)	-	-	X (P-5740)	-	Median Barrier Resurface
N. 30th Street (SR 1302)	-	-	X (P-5740)	X (P-5740)	Gates/Resurface
Princess Place Drive (SR 1301)	-	-	X (P-5740)	-	Signal/Cantilever Resurface
Clay Street	-	-	-	-	**Close Crossing**
Henry Street	-	-	-	-	Signal/Gates
Market Street (US 17)	X	-	X (P-5740)	-	Median Barrier Resurface
Covil Avenue	-	-	-	X (P-5740)	Signal/Cantilever Resurface
Mercer Avenue	-	-	-	X (P-5740)	Gates
Forest Hills Drive	-	X	-	X (P-5740)	Gates
Colonial Drive	-	-	-	X (P-5740)	Gates
Wrightsville Avenue (SR 1411)	X	-	X (P-5740)	-	Signal Upgrade Resurface
River to Sea Bikeway	-	-	-	-	-
Oleander Drive (US 76)	-	-	-	X (P-5740)	Signals Upgrade Median Barrier
S. 17th Street (SR 1219)	-	-	X (P-5740)	-	Resurface
S. 16th Street (SR 1218)	-	-	X (P-5740)	-	Resurface
Marstellar Street	X	-	X (P-5740)	X (P-5740)	Median Barrier Resurface

Crossing	Safety Concern				NCDOT P-5740 Safety Improvement
	Skewed Crossing (<60 degrees)	Humped Crossing	Poor Crossing Surface	Insufficient Warning Device	
S. 13th Street	-	-	-	X (P-5740)	Gates
S. 12th Street	-	X	-	X (P-5740)	Signals/Gates
S. 10th Street	-	-	-	X (P-5740)	Signals/Gates
S. 9th Street	-	-	-	X (P-5740)	**Close Crossing**
S. 8th Street	-	-	-	-	Signals/Gates Resurface
S. 7th Street	-	-	-	X	Resurface
S. 6th Street/Martin Street	X	-	-	-	Resurface
S. 5th Street	-	-	-	-	Median Barrier
Martin Street at Hooper Street	X (P-5740)	-	-	-	**Close Crossing**
S. 4th Street	-	-	-	-	Signals/Gates
S. 3rd Street (US 421)	-	-	-	-	-
S. Front Street (SR 1140)	X	-	-	-	-
Greenfield Street	-	-	-	-	-
Myers Street (SR 1112)	X	-	-	-	-
Woodbine Street	-	-	-	-	-

Sources: Interpreted from Wilmington Traffic Separation Study (2017) (STV 2017); NCDOT P-5740 FRA Categorical Exclusion Worksheet (2021).